UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/627,190	07/27/2000	Srihari Adireddy	US 000064	1208

24737 7590 05/18/2005

PHILIPS INTELLECTUAL PROPERTY & STANDARDS
P.O. BOX 3001
BRIARCLIFF MANOR, NY 10510

EXAMINER	
WILLIAMS, LAWRENCE B	
ART UNIT	**PAPER NUMBER**
2634	

DATE MAILED: 05/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/627,190	ADIREDDY ET AL.	
	Examiner	Art Unit	
	Lawrence B Williams	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on ~~amendment filed on~~ 07 February 2005.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-9,12-17 and 19-21 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) 17,19 and 20 is/are allowed.

6)☒ Claim(s) 1,5,9,13 and 21 is/are rejected.

7)☒ Claim(s) 4, 6-8, 14-16 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Allowable Subject Matter

1. The indicated allowability of claims 3-8, 11-16, 18-20 is withdrawn in view of the newly discovered reference(s) to Younce et al. (US Patent 5,521,908). Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 5, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riazi et al. (US Patent 6,580,705 B1) in view of Younce et al. (US Patent 5,521,908).

(1) With regard to claim 1, Riazi et al. discloses in Fig. 1, a transmitter for transmitting a stream of known symbols and unknown symbols through a transmission channel to a first receiver that receives the transmitted stream of known symbols and unknown symbols distorted by intersymbol interference (1SI) and reduces therein an ISI signal (abstract), wherein the transmitter comprises: a known symbol distribution controller (165) capable of inserting a plurality of known symbol clusters into an outgoing stream of unknown symbols in an optimum distribution in order to improve the performance of the first receiver (claims 1 and 11). Riazi et al. does not however disclose wherein said known symbol distribution controller is capable of

determining a channel order, L, associated with the receiver; and wherein said known symbol distribution controller determines the optimum distribution according to a value of the channel order.

However, Younce et al. discloses determining a channel order, L, associated with a receiver and determining an optimum distribution (model locations) of SIRF coefficients according to a value of the channel order (col. 3, lines 7-24, col. 4, lines 3-14; claim 1).

Therefore it would have been obvious to one skilled in the art at the time of invention to combine the teachings of Riazi et al. with those of Younce et al. as a method of jointly minimizing distortions which result from both a distorting channel and an echo path (col. 2, lines 47-63).

(2) With regard to claim 5, though neither Riaza et al. nor Younce et al. explicitly teach wherein said transmitted stream of known symbols and unknown symbols is received by a plurality of receivers or wherein each channel order is associated with a corresponding one of said plurality of receivers, Younce et al. does teach determining a plurality of channel orders, L1 through Ln (col. 3, lines 7-24). Younce et al. discloses repeating his required steps for computing SIRF coefficients based on an approximated channel and echo impulse response (abstract). It would be obvious to one skilled in the art at the time of invention that this method could also be used for multiple receivers, each having varying channel and echo impulse responses.

(3) With regard to claim 21, Riazi et al. also discloses wherein the known symbol distribution controller is capable of inserting the plurality of known symbol clusters into a plurality of positions in the outgoing stream of unknown symbols (col. 3, lines 50-57).

4. Claims 9, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duxbury (US Patent 6,289,063 B1) in combination with Riazi et al. (US Patent 6,580,705 B1) and further in view of Younce et al. (US Patent 5,521,908).

(1) With regard to claim 9, Duxbury discloses in Fig. 1, a network comprising: a plurality of receivers (100), each of said receivers capable of receiving from a transmission channel an incoming stream of known symbols and unknown symbols distorted by intersymbol interference (ISI), wherein each of said receivers comprises a block decision feedback equalizer (107, A, B) capable of receiving the transmitted stream of known symbols and unknown symbols distorted by intersymbol interference (ISI) and reducing therein an ISI signal (col. 2, lines 5-16; col. 3, lines 45-51); and a transmitter (Fig. 1, 50) for transmitting a stream of known symbols and unknown symbols through a transmission channel to a first receiver.

Duxbury et al. does not disclose wherein the transmitter comprises a known symbol distribution controller capable of inserting a plurality of known symbol clusters into an outgoing stream of unknown symbols in an optimum distribution in order to improve the performance of a first receiver.

However, Riazi et al. discloses in Fig. 1, a transmitter for transmitting a stream of known symbols and unknown symbols through a transmission channel to a first receiver that receives the transmitted stream of known symbols and unknown symbols distorted by intersymbol interference (ISI) and reduces therein an ISI signal (abstract), wherein the transmitter comprises: a known symbol distribution controller (165) capable of inserting a plurality of known symbol clusters into an outgoing stream of unknown symbols in an optimum distribution in order to improve the performance of the first receiver (claims 1 and 11).

One skilled in the art would have clearly recognized that a transmitter comprising: a known symbol distribution controller capable of inserting a plurality of known symbol clusters into an outgoing stream of unknown symbols in an optimum distribution in order to improve the performance of the first receiver is a well-known technique introduced in many references. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to apply the method as taught by Riazi et al. to modify the invention of Duxbury as a method of improving the quality of services for wireless transmission and reception systems (col. 1, lines 50-56).

Neither Riazi et al. or Duxbury et al. however disclose wherein said known symbol distribution controller is capable of determining a channel order, L, associated with the receiver; and wherein said known symbol distribution controller determines the optimum distribution according to a value of the channel order.

However, Younce et al. discloses determining a channel order, L, associated with a receiver and determining an optimum distribution (model locations) of SIRF coefficients according to a value of the channel order (col. 3, lines 7-24, col. 4, lines 3-14; claim 1).

Therefore it would have been obvious to one skilled in the art at the time of invention to combine the teachings of Riazi et al. and Duxbury et al. with those of Younce et al. as a method of jointly minimizing distortions which result from both a distorting channel and an echo path (col. 2, lines 47-63).

(2) With regard to claim 13, though neither Riazi et al. in combination with Duxbury et al. nor Younce et al. explicitly teach wherein said transmitted stream of known symbols and unknown symbols is received by a plurality of receivers or wherein each channel order is

associated with a corresponding one of said plurality of receivers, Younce et al. does teach determining a plurality of channel orders, L1 through Ln (col. 3, lines 7-24). Younce et al. discloses repeating his required steps for computing SIRF coefficients based on an approximated channel and echo impulse response (abstract). It would be obvious to one skilled in the art at the time of invention that this method could also be used for multiple receivers, each having varying channel and echo impulse responses.

Allowable Subject Matter

3. Claims 17, 19-20 are allowed.

5. Claims 4, 6-8, 12, 14-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter: The instant application discloses a transmitter for transmitting a stream of known symbols and unknown symbols through a transmission channel. Prior art records fail to teach a transmitter and plurality of receivers "determining a maximum one of the plurality of channel orders" as disclosed in claim 17. Prior art records fail to teach a transmitter "wherein said known symbol distribution controller determines a minimum size of each of the plurality of known symbol clusters according to the value of the channel order" as disclosed in claim 4 and 12. The prior art also fails to teach a transmitter "wherein said known symbol distribution controller is capable of

determining a maximum one of the plurality of channel orders" order as taught in claims 6 and 14. The prior art also fails to teach the method comprising " the step of determining the optimum distribution according to the value of the maximum channel order" as disclosed in claim 19.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence B Williams whose telephone number is 571-272-3037. The examiner can normally be reached on Monday-Friday (8:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571-272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lawrence B. Williams

lbw
May 10, 2005

Amanda Le
AMANDA T. LE
PRIMARY EXAMINER